1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.596] Sierra Tarascans

804 *Cubic measure (used in masonry)*
1 *barra* = 1 yd. × 1 yd. × 16 in.
1 *metro* = 1 m. × 1 m. × 50 cm.

PRODUCTION

433 439 Production in Cherán depends more directly upon the land than it does in most other Tarascan villages. Although the land ultimately is the source of all Tarascan raw materials, some industries require relatively few of such materials. In some cases—for example, the straw hat industry—all the raw materials are imported from outside the Tarascan area. Even more numerous are instances where the raw materials are secured from some other Tarascan town.

While Cherán economy is primarily self-sufficient in character, it is less so than are most Indian economies of Mexico. Cherán does supply most of its own basic food and housing needs, but it does not supply its own clothing. Moreover, many foods every Cherán resident desires are not produced locally. Numerous Cherán families also depend on wages more than upon their own direct exploitation of the land or upon industry. Finally, Cherán produces many goods for export, although to a far less degree than neighboring Paracho.

LAND

423 Tarascan land is of three main types: farm, forest, and residential. To these might be added public roads, water courses, and mineral deposits. The latter are relatively unimportant. Public roads and trails of course serve communications and do not enter directly into production. Water courses are also mainly in the public domain. Virtually their only use is to supply drinking water for man and beast and for washing purposes. Public lands also supply the small requirements of sand, clay, and building stone.

All permanent farm lands are privately owned. The only exceptions are occasional temporary fields cleared from the forest on lands too steep for cultivation for more than a few years. On the farm lands the major products are white or yellow maize and wheat. Beans, squash, fruits, oats, and barley are produced only in small quantities.

426 In addition to the above-described types of loans, there are also loans at interest for which normally no security is offered. These loans are usually made by persons within the village and rarely exceed $100 in amount. Interest is normally 10 percent per annum. In some cases it is stipulated that the debt is to be canceled upon the death of the debtor. In other instances the debt becomes a charge against [428] the estate of the debtor. If the possessions of the debtor at death are insufficient to pay the debt, it is not transmitted to his sons. However, according to Pedro Chávez, the sons probably would make every effort to pay such a debt because of the strongly held belief that a person [775] dying with debts cannot rest in peace until the debts are paid.

All transactions involving loans are in writing, although they are not registered at the *municipio*.

COSTS OF PRODUCTION AND INCOME

433 Some further insight into production prob-
434 lems may be gained by detailed studies of
128 specific activities. These data throw light upon the relative profitability of such activities and also provide information on income. Not all activities are covered in the ensuing discussion, nor are the data equally reliable in each category. Such activities as witchcraft or midwifery are not included; the labor factor in beekeeping or fruit growing is impossible to ascertain. An activity followed by only a few individuals merits less attention than one followed by many.

Not only is the treatment of topics uneven, but the income data are subject to misinterpretation. It must be emphasized that virtually no one in Cherán, except a few "rich" farmers or storekeepers, has only one occupation. Consequently, any effort to establish annual income on the basis of figures in this section would be grossly misleading. Finally, it should be noted that not all the activities discussed below are productive. Because of the problem of income, I have considered a number of "service" occupations in this section.

AGRICULTURE

243 *Maize.*—Data on farm production were diffi-
433 cult to obtain. On no other subject is there so
124

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
Sierra Tarascans

[p.64b]

124 much secrecy or misleading information given.
243 Three sources of information were used: (1)
433 Data from farmers about their own activities. All this information is suspect, even after eliminating obviously false answers. (2) Data from Agustín Rangel, who was interested in establishing himself as a farmer and probably was a good and relatively unbiased observer. (3) Observation of farm practices and participation in harvests on roughly measured fields. Actual measurement of fields was undesirable and would have caused trouble.

243 In table 1 are given the various data collected
433 on farm yields. The average of figures given by farmers is about the top figure given by Rangel for average land in a poor year. It is slightly above the figure for the yield of average land in a poor year as secured by participation in the harvest. The cross checks suggest the figures given by farmers are on the whole plausible although probably low. The figures given by any individual farmer, however, may be quite incorrect. This should be borne in mind throughout the discussion.

TABLE 1.—*Estimates of maize yields in Cherán*

ESTIMATE BY OWNERS

Number of hectares cultivated	Yield (per hectare) in—		Value of crop
	Cargas	*Fanegas*	
2½	40	30	.....
10½[1]	180	135	.....
½	7	5¼	.....
1½[2]	20	15	100–110
1½[3]	10	7½	60– 70
1½[3]	5	3¾	25
1½[3]	10	7½	65
½[3] (early-frost area)	3	2¼	15
4	90	70	350–400
1	10	7½	40
1½	10	7½	40
½	12	9	85
½	12	9	85
Average	...	14⅝	.....

ESTIMATE BY AGUSTÍN RANGEL

Type of land and year	Average yield per hectare	
	Cargas	*Fanegas*
Best land:		
Average year	40	30
Bad year	15–25	11¼–18¾
Average land:		
Average year	30	22½
Bad year	5–20	3¾–15
Poor land	.....	1½

[1] An exceptionally rich "joya," a fertile depression in the mountains fertilized by drainage from surrounding slopes.

[2] This is a stupendous yield, if true, but the land is said to be exceptionally located, with fertilization from adjoining slopes.

[3] Data in this line are typical of information from owners. One area given as ½ hectare yields a crop to be expected of a full hectare; on inspection, it proved to be nearly 3 hectares.

[124]

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
Sierra Tarascans

[p.165a]

TABLE 1.—*Estimates of maize yields in Cherán*—Continued

243
433

ESTIMATE BASED ON OBSERVATIONS AT HARVEST

Type of land	Yield in *fanegas* per hectare	Remarks
Poor to average land	3	Maize badly damaged by early frost.
Average land	12	Maize slightly damaged by frost.

243
433
461

In addition to securing data on yield, i.e., income, for maize, an effort was made to secure data on production costs. General statements as to the amount of time put in on farm work proved worthless. Usually the time given would scarcely provide for a single weeding. The best figures were secured by breaking down the different steps and getting experienced farmers to estimate the time necessary for cultivating 1 hectare. A summary of such data gives the following:

Labor of owner:	Days
First plowing	10
Second plowing (at right angles)	10
Sowing	3
First cultivation (with plow)	4
Second cultivation (with plow)	3
First weeding (with sickle or machete)	3
Second weeding (often omitted)	3
Harvest	1
Carrying maize to house (estimated average)	5
Total	42

Hired labor:	
Sowing (2 peons)	3
Harvesting (3 peons)	1

[465]

Costs:	
Owner's labor (42 days valued at $0.45 a day outside of planting and harvesting time)	$18.90
2 peons for 3 days	3.00
3 peons for 1 day	1.50
Total	$23.40

On the assumption that a man will own sufficient land to require hired labor, the summary given above includes 9 man days of hired labor at a cost of $4.50 or a total of 51 man days of labor worth $23.40. To this must be added $30 for hire of an ox team if one is not owned, probably $1 in taxes, and $2.50 for the value of the seed corn (one-half *fanega*), or a total of $56.90. If this is about an average piece of land, the yield will be 15 to 20 *fanegas* of shelled

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.65b]

243 maize, for which the farmer should receive from
433 $75 to $120, or a profit of $22.10 to $63.10.
461 From this, in theory, should be deducted interest on the investment in land and equipment as well as a depreciation allowance on the equipment. If the land is worth $90 (above average), it would seem fair to allow at least $11 for these charges, which still leaves a profit of $11.10 to $52.10.[23]

As will be seen in later discussions, this makes maize farming on average or better land probably one of the most worth-while businesses in Cherán. Obviously there are elements of risk. Farmers on poor land, moreover, probably get no profits at all on this basis, for labor and expenses would be reduced very little relative to reductions in yield. The second weeding and part of the harvesting expenses might be eliminated. But if the yield is as low as 1½ *fanegas* (as has been reported) a man would get virtually no return at all. If he had his own ox team and did all his own work (with the help of sons or his wife), he might get $4 to $5 worth of maize for his effort after deducting the costs of seed and taxes. From the standpoint of our economy, there is obviously a very considerable net loss.

To view the agricultural situation in Cherán only from the standpoint of our economy, however, would be grossly misleading, for to do so does not take into account numerous cultural factors. The Cherán point of view does not reckon agricultural activity in terms of interest, profits, and wages, but in terms of maize in the storage house. I have already mentioned that harvest workers refused an increase in wages from 50 centavos to $1 if the right to glean were rescinded. Most observers agree that the amount of maize obtained from gleaning in a day is less than can be bought for 50 centavos. At $1 the workman could therefore buy more corn than his wife could obtain by gleaning. The large farmers would get a more thorough harvest and would not have to employ supervisors. On a bookkeeping basis, everyone would benefit. But the harvest hand would not have a load of maize, small though it might be, to carry home from a day's work; he would have only an inedible silver peso in his pocket.

[23] Charges for animals to carry the crop and for watchmen and storage facilities are not included.

243 In the case of the farmer who slaves at pro-
433 ducing a scanty crop on submarginal land,
461 similar considerations are important. The farmer does not count interest and wages; the measure of his effort is maize in the storehouse to feed his wife and children. It is useless to point out that he could earn enough wages for the same amount of labor to buy two or three times as much maize as he can produce, for he will not be convinced.

243 Even in the case of the average or somewhat
433 better than average case cited in detail, the
153 calculations made on the basis of our economic viewpoints are relatively valueless. Profits, interest, depreciation, and wages do not enter into the farmer's calculation (with the exception of a few large farmers). Rather would the typical farmer calculate that the maize obtained in this case would, with a family of not over five, feed the family for a year by exercising due care. If he had two pieces, each of a hectare or a little more in area, in two locations to plant alternate years, he could count with some security on feeding his family. If, in addition, he had a bit of wheatland, he would probably sell enough wheat to meet the essential cash outlays for his family. Any income from livestock, work in the forest, or as a hired laborer would then go into essentially luxury spending or savings to buy more land. It is wheat that is a money crop, it should be noted, and not maize. Only the wealthy sell maize, and only the poor or improvident buy it.

184 In case maize is raised for sale on any scale,
433 however, the farmer encounters new market-
243 ing problems. The local market prefers yellow maize, as does Mestizo Purépero. Uruapan, on the other hand, prefers white maize, while the Lake Pátzcuaro region desires pink, red, or mixed color maize. As prices may vary in the different major markets, the farmer's income may be affected by the color of maize he has grown.

243 From the statements given above it should
433 not be concluded that the idea of a return for
427 land ownership, i.e., a return upon the capital investment, is lacking in Cherán. It exists, but it is colored by the local attitudes. Thus, farmers with more land than they can conveniently cultivate, storekeepers owning land, and various others may rent land on a share-

243 433 427 cropping basis. The number of sharecroppers in Cherán is unknown, but probably is considerable. Small landowners often farm additional lands on this basis, and some fairly prosperous families are sharecroppers.

The rental paid by sharecroppers is usually one-half the crop. In the case of our average hectare this would mean the owner received 7½ to 10 *fanegas* of maize worth from $37.50 to $60.00. This might well be equal to more than a 50 percent return on the investment in land. As even the most exorbitant interest rates on cash loans from banks would not exceed 15 percent, it would appear to be a very good business to borrow money to buy land for rental on a sharecropping basis. Yet such a procedure, so far as could be discovered, is seldom if ever followed. Moreover, persons with money will lend on land as a security, receiving only interest, instead of buying land which would appear to offer a relatively larger return. (But short-term loans are at a much higher rate of interest. See p. 63.)

231 243 427 434 A number of factors still have not been treated in the foregoing discussion. It should be observed that the hypothetical farmer could still further decrease his cash outlay if he owned his own ox team. Such a team would be worth from $100 to $120, depending on size. Ownership of a team would save about $30 a year in rental in cultivating a hectare. In addition, there might be opportunities to rent the team at $1 a day for perhaps 30 days to work on maize lands and perhaps for another 30 days during the wheat season. As there is less demand in the latter time, the rental probably would be only 75 centavos a day. The returns from rentals, however, would possibly be $52.50 a year. If the saving of $30 for rentals on the farmer's own land were included the investment in an ox team obviously would be a very good one.

Ownership of livestock, however, involves the problem of feed. Mostly the feed is secured by cutting the *rastrojo* or corn fodder. Wheat straw is also fed. Part of the year animals may be grazed on the common pastures. Rarely, however, is enough feed produced, and in a bad year there is always danger of losing animals during the latter part of the dry season. Ownership of oxen also increases the

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.679] Sierra Tarascans

231 amount of labor. Not only must *rastrojo* be
243 cut, but the animals must be visited every 2 or
427 3 days while in pasture.
434 The question may be raised why horses or mules have not replaced oxen to any extent. Although horses or mules will do at least twice the amount of work in a day, owing to their greater speed and ability to work longer hours, they do not thrive on the corn fodder, wheat straw, and scanty pasturage. Grain feed is also necessary, at least during the working season. In general, horses and mules are more delicate and require more attention, greater skill, and better shelter. Finally, their initial cost is greater and they cannot be slaughtered for meat, as are oxen, when they have outlived their usefulness as draft animals.

Wheat.—Although wheat is the primary cash
243 crop of Cherán, it is seldom grown on lands
433 which will produce good maize. Wheat is often
311 grown on inferior land, often on slopes, but never on really bad lands. Farmers using good land for wheat usually have a surplus of maize lands.

The cultivation of wheat takes a little less
243 labor than does that of maize. Plowing is the
461 same or perhaps a little less (the second plow-
433 ing being shallower). Broadcasting of seed and harrowing equate with maize planting, but it is a one-man job and requires no oxen if the farmer owns a burro. The primitive harvesting with a sickle would seem to call for more labor, but estimates were fairly low. A summary of estimates for cultivating a hectare follows:

	Days	
Labor:		
First plowing	10	
Second plowing	10	
Sowing and harrowing	2	(or less)
Harvesting	4½	
Total labor	26½	

Costs:	
Labor (26½ days at $0.45, value)	$11.92
Rent of oxen (20 days at $0.75, value)	15.00
Taxes	1.00
Seed	1.00
Total production costs	$28.92
Interest on capital investment	11.00
Total cost of cultivation	$39.92

243 The best wheatland produces about 2 *cargas*
433 of wheat per hectare; lands producing less than 1½ cargas are seldom cultivated. The wheat must then be threshed before sale, and this will cost $2.50 a *carga* in the mill and about the same if threshed by hand. The wheat will sell at from $22 to $30 a *carga*, depending upon the market ($26 in 1941).

243 The return in cash, then, is between $33
434 (1½ *cargas* at $22) and $60 (2 *cargas* at $30). The net profit in terms of our calculations would vary between minus $10.67 and plus $15.08. This figure does not count the labor of carrying the wheat to the house and thence to the mill, or winnowing; neither does it include the value of the straw (used as feed). Again, however, the Cherán farmer who received $33 for his year's work on a *hectare* would count himself relatively fortunate.

The return from wheat is less than the potential return from maize cultivation on average land. In general, however, wheat is usually grown on lands giving a poor maize yield. Moreover, the demand for wheat appears to be
243 more stable, and in days when transport was
434 all on pack animals the greater value of wheat
438 per volume and weight made it much more
[491] attractive as an export crop. The opening of the highway may alter the situation, as it makes bulk transportation of maize feasible. On the other hand, the highway has opened up new
[439] markets for wheat. Trucks from the large flour mill at Morelia now come to buy wheat in Cherán and even penetrate to mountain villages such as Pichataro. Consequently, a much wider market is available than the regional mills that could be reached in a day or a little more with burros. Of course, similar expansion of markets is available to maize growers and producers of other products. It is still too early to predict the effects of improved communications on the agriculture of Cherán, but some additional considerations are discussed in connection with trade.

243 Another way of disposing of wheat is to sell
256 it at a flour mill in a Mestizo town or convert
434 the wheat into flour and sell the flour. The
438 price paid at flour mills is about $4 a *carga* above the Cherán price. Mills charge an 18 percent discount if the farmer chooses to have his wheat milled. This covers waste, bad

241
433
434
511

TABLE 2.—*Data on farm income*

[Data for 1940, claimed; for 1941, estimated.]

Case No.	Land cultivated			Yield			Value of crops[1]		Total income for year		Combined income for 1940–41
	Number of parcels	Number of hectares	Value	Crop	1940	1941	1940	1941	1940	1941	
1[2]	2 1	2	$140	Maize do	20 fanegas	10–15 fanegas	$100–140	50–100	$100–140	50–100	$150–240
2[2]	1 1	4 Town lot	350	Maize Pears	35 fanegas 10–100's	5–100's	175–200		175–200		175–200
3	1 1 1 1 1	8 1 1½ Town lot[3] 3½	1,250	Wheat Maize do Peaches Maize	17½ cargas 7½ fanegas 7½ fanegas 25–100's	25–100's 55–110 fanegas	$358–571 40 40 10	10 275–660	448–561	285–670	733–1,231
4	1 1 1	½ ½ ½	120	Wheat Maize do	1 carga 9 fanegas	9 fanegas	25 55	55	80	55	135

[1] Values of fodder or wheat straw not included.
[2] Land rented; crop values represent owner's share (one-half).
[3] Cost of threshing deducted.
[4] Value not included in $1,250.

[p. 68c]

236 year, or a total of $442.50 to $492.50 a year.
434 Deducting expenses of $345 leaves a return on the investment of $107.50 to $147.50. As indicated before, these figures are suspect. The owner of this flock is not believed to be
[124] very truthful on financial matters. For example, he claimed to own 20 sheep; Augustín Rangel said he had over 200. He is, though, a hard-headed storekeeper and farmer who would not keep sheep if they were not profitable. The most suspect item in the calculations is the amount of wool per sheep.

231 The evaluation of the role of the burro is as difficult as in the case of oxen. Burros reduce
434 the cost of numerous operations by saving the rental of animals, they facilitate such tasks as bringing in wood (which otherwise would be carried in by the woodcutter rather than on rented animals), and they may be rented. Burros involve little investment—$30 to $40—but they do require attention while in pasture and the provision of feed when kept at home. Although burros not in use are often lent, they
[427] sometimes are rented. Information on rentals is contradictory; at the harvest season, when demand is highest, rentals are probably about 50 centavos a day plus feed for the animals.

313 The ensuing topics are dealt with in summary form to bring out the essential factors of
434 capital, labor costs, cost of materials, and income.

433 ## WOODWORKING

Shake making:

Tools:

Ax, wedges, machete, splitting tool

Product:

[435] ½ irepita (an irepita, or bundle, is 400) a day at $5.00

Profits (return on labor, less interest on capital, etc.) $2.50

Comment: Shake making is a well-paying occupation, but profits are less than the data above suggest. Shakes are made either only to order or are sold in Uruapan or some other Mestizo center. In the latter case the man may work regularly, but must spend 1 or 2 days a week taking his product to market. Neither does the estimated result for a day's labor include the time spent searching for a suitable tree. Usually only a 5-day week or less is worked and the season is confined to the rainy period. As a result, shake makers must shift to other work, such as plank making, tie cutting, farming, etc. The term "profits" is loosely used throughout, as wages are often included.

313 *Plank making:*

Tools:

433 Oak mallet
Oak wedges
434 Ax
Two-handled saw

Expenses:

Haulage (ox team, horse, or even burros)
Forest use tax (now 10 pesos for membership in cooperative)

Production (with good workmen):

3 dozen planks per week

Gross profits:

$0.85 to 1.25 per day per person

Comment: Sawing planks requires two men, hence work is done by teams. The gross profits probably are very nearly all net, as deterioration of equipment is slight. Maintaining an average income of the larger size indicated would require 6 long work days a week for the most skilled workers.

Firewood cutting:

Some men at times cut firewood for sale. A burro load brings $0.25 to $0.30.

Tie cutting:

Data on this subject seem unreliable and are omitted.

314 *Charcoal burning:*

433 Beyond the fact that charcoal burners work a 5-day
434 week, no economic data were secured. The little charcoal used in Cherán is sold at 2½ to 3 centavos a kilo delivered.

Carpentry:

335 *Tools:*

433 Mallet, saw, chisels, hammer, ax, adz, plane;
434 value about $20–$30

Products, labor, value:

As each carpenter's job is unique, only a series of cases can be given, as follows:

[435] (a) Large door takes 4 days (10 to 12 hours daily), lumber cost $4, selling price $17, gross profit $13, daily return (not allowing for interest on capital, etc.) $4.25.

(b) Average door takes 4 days (6 to 7 hours daily) lumber cost $4, selling price $12, gross profit $8, daily return $2.

(c) Average door takes 6 days (but this carpenter has rheumatism and cannot work steadily), selling price $5 a door if lumber is furnished, daily return less than $1.

(d) House building or house moving, $1.50 daily (if done under contract, as usual).

Comment: As only carpenters with other members in the family to get wood, do chores, look after animals, etc. can work more than 6 or 7 hours a day, probably $2 a day is top income. Moreover, as work is not steady and as all seem eager to take house building or house
[465] moving jobs at $1.50, it may be assumed that average wages the year around are less than $1.50.

322 *Wood turning:*

433 *Equipment:*

434 Lathes
Saws
Chisels

Product:

Chocolate beaters

Cost of materials:

No data; the small quantity of madroña wood used is probably a minor factor.

Labor:

[435] About 25 to 30 beaters are made in a day's work. Sale price at 50 centavos per dozen ..... $1–$1.25

Comment: Considering the costs of materials and the time involved in selling the product, returns for labor probably are under $1 a day. Only one man in Cherán follows this trade.

MINERAL PROCESSING AND USE

339 *Brickmaking and tilemaking:*

433 *Labor* (per 1,000 tile or brick):

434

	Days
Getting and mixing clay	2
Cutting and hauling wood	1
Shaping	5
Loading kiln	1
Total	9

Other costs (*in kind*):

Rent of building and right to dig clay on public lands (paid to *municipio*), 10 percent of product value:

Tile, per 1,000	$3.00
Brick, per 1,000	3.20

Sales prices:

[435]

Tile, per 1,000	$30
Brick, per 1,000	32
Gross profit, tile, per 1,000	27
Daily profit per worker	3

Comment: While brick bring a slightly higher price, there is a greater loss in firing. Consequently, profits are about the same as for tile. The demand for brick or tile is not sufficient to employ two men full time. The wage return is hence misleading, indicating what might be possible if demand provided steady labor. The fact that both tilemakers took jobs on highway [465] construction crews whenever possible at $1 a day suggests that income over a long period of time is much less than is indicated. On the other hand, the tilemakers probably average a higher annual income than do unskilled landless farm laborers in Cherán.

333 *Masonry:*

433 *Equipment:*

434 Trowel ("*cuchara*")
Short shovel
½-pound iron mallet ("*marro*," maso)
2-pound sledge with pointed ends ("*picadera*")

Production:

333 Less than 1 meter to nearly 2 meters a day

433 *Price:*

434 From 80 centavos a meter to $1.25; about $1 a meter seemed most common

[435] *Average return:*

From 80 centavos to $1.50 seems common

Comment: Essentially the mason's wage is clear profit. Replacement of tools is undoubtedly a minor factor. Attractive as the wage is, a mason is idle much of the time. It is doubtful if masons earn enough to live on without also farming or working as laborers. Some masons are also butchers, plasterers, or *tejamanil* makers.

Stonecutting:

324 *Tools:*

433 2-pound iron mallet

434 Chisels

Calipers (value unknown)

Labor:

Nixtamal grinding stones (pair)	3 days
Door bases (pair)	1 week

Sales price (gross profit):

[435]

Nixtamal grinding stones (pair)	$9
Door bases and sills (each)	10

Comment: The figures suggest a $3 a day gross income, but stonecutters work only to order and do not work regularly.

TEXTILE MANUFACTURE

285 *Tule mats:*

Costs:

433

434

Tules at Erongaricuaro, per bundle	$0.25
Rent of burro, 3 days	1.00
Total cost of 10 bundles of tules (1 burro load)	3.50

Labor:

	Days
Getting tules	3
Weaving 13 mats	6½
Selling mats	2½–3
Average total time	12

[435]

Sales price at 60 centavos each	$7.80
Gross profit	4.30
Daily profit per worker	.35 plus

Comment: Except for one woman, mat making is a side line and only one a day is woven. The figures given above represent the single case where a woman spends all her time at mat weaving. Actually, this woman has a slightly higher income, as her mother buys the tules. On the other hand, two people are supported by the work, for the weaver has to rely on the mother to perform most of the household duties.

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.116] Sierra Tarascans

Hats:

295 Cost of materials:
433 Braid, 3 to 4 bundles at $0.30 to $0.40 ..... $0.90–$1.60
434 Thread, per hat ..... .15
Sizing materials for white hats ..... Unknown
Total ..... 1.05–1.75 (?)

Labor, per hat ..... 8–9 hours (approximately)
[435] Selling price, per hat $1.25–4.00
Gross profit, per hat $0.20–2.10
Return for labor, per hour ... $0.06⅔–0.23 plus (?)
Return for labor, per day $0.60–2.10

Comment: The apparently wide range of returns for labor is misleading. Few men could work 9 hours a day every day, owing to the need of getting firewood, repairing the house, caring for farm lands, etc. The more expensive hats, giving a much larger return, require much more skill and are in very slight demand. Ordinarily they are made only on order.

In addition, hatmaking requires a large capital investment. A sewing machine of the type required costs [427] $40 to $50 second-hand, or rents at $10 a month. Hat blocks last indefinitely, but do involve initial outlay. Metal eyelets also must be provided for the ventilating holes. If depreciation, interest on investment, and minor expenses not calculated were taken into account, the income of the average hatmaker would shrink still more.

When it is considered that two skillful hatmakers claim only 1 dozen hats apiece a week, obviously the returns must not greatly exceed those for ordinary field labor. Only men who consistently produce and sell hats above the $1.25 price gain real economic advantage from their trade as compared with other activities. On the other hand, if the trade is a supplement to farming and is followed at times when similarly situated farmers are at leisure, then they realize a very positive economic gain.

Embroidery, crochet, and drawn work:

286 Materials, thread from stores, cloth (estimated) $1.00
433 Labor (part time) ..... 1–3 weeks
434 Selling price ..... $4.00–$12.00
[435] Gross profit ..... $3.00–$11.00
Return for labor, per week $3.00
Return for labor, per day ..... $0.40–$ 0.50

Comment: For part-time work, the daily return seems, and probably is, high. In most cases the cost of materials is probably higher than the estimate.

Blanket weaving:

Equipment:[2]
Cards, life 3 years $3.00
Spinning wheel, life indefinite 12.00
Loom, life indefinite ..... ?

[2] Spinning wheel and loom might be made by almost any man with moderate skill in woodworking. Weavers usually make their own looms.

Cost for 6-pound blanket:

Wool, 9 pounds (varying with year and season)	$11.25

Labor:	Days
Purchase of wool	1
Cleaning and washing, actual labor (covering 2 or 3 days' time)	1
Carding	2
Spinning	2
Weaving	2
Total	8

Asking price	$25.00
Average sales price	20.00
Gross profit	8.75
Return for labor per day	1.09 plus
Return per day for total days spent on part-time [illegible]	.58 plus

Comment: Although involving only 8 days' actual labor, the work would be spread over about 15 days. Weavers usually would have to take 1 or 2 whole days off to get wood and some days or parts of days when the weather might be unpleasant. In addition, repairs to equipment and houses must be made, perhaps an animal must be looked after, and so on.

Belt weaving:

Equipment:
Loom, home-made

Costs:

Materials, thread and yarn	?
Labor, part time	2 days
Asking price	$1.25
Actual selling price	1.00
Gross profit, estimated	.80–.90
Daily labor return (part time, probably 5–6 hours)	.40–.45

Clothing manufacture:

Capital investment:	
Sewing machine	$40.00–150.00
Expenses:	
Materials (for work on order)	None
Returns per day (from various workers' statements)	$0.75–$1.80

Comment: Most workers, especially men, are part-time operators; many work only on order, when daily income for elaborate garments may be much higher. Income figures are hence misleading, as they are based on steady work on low-priced garments.

Clothing made for exchange at weddings usually is only single-stitched; regular clothing is double-stitched. Prices for sewing men's cotton trousers vary from 10 to 15 centavos for single stitching and 15 or 25 centavos for double stitching. Men's shirts vary in cost from 25 to 40 centavos (or more for fancy rayon shirts). Women's aprons cost 12 centavos.

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p. 726]

294 433 434 [435] Some persons make and sell finished garments. Men's trousers or blouses require about 2½ meters of material, at an average cost of about 30 centavos a meter. One woman specializes in children's garments. She claims to make 3 to 4 dozen children's garments a week, selling them at 80 centavos to $2.50 apiece (including materials). Her profits vary. A child's rayon dress requiring $1.50 worth of material she sold for $1.75, while for a cotton dress requiring $0.40 worth of material she charged $0.80.

[439] All fitted or tailored garments, which are growing in popularity, are imported. A widely heard comment was that anyone in Cherán who could make and fit garments, especially men's shirts, would make great profits.

MINOR ACTIVITIES

433 434 [394] *Candlemaking:*

Cost of wax (per kilo)	
Sales of candles from 1 kilo of wax	$2.25–$2.50
Possible profit (excluding labor and equipment)	$0.50–$1.00

[283] *Rope making (horsehair):*

Horsehair $0.50 per kilo	$0.37½
Labor	1 day
Sale price	$1.50
Gross profit per day	$1.12½

Comment: Only one man was found who made ropes. No data were secured on agave fiber ropes made by the same man, nor on the time taken in marketing and securing raw materials. As all the equipment is home-made and very little capital is needed, the gross profit probably is close to net profit except for the factors mentioned.

295 433 434 *Shoemaking:*

Equipment:

Sewing machine	$55.00
Lasts	?
Knives	?

Labor:

1 cheap pair of shoes per day is produced by a shoemaker and 2 unpaid apprentices

[435] Value of product (per pair) $3.00–7.00

Estimated gross income:

Per day	1.50
Per pair of shoes	1.50–3.50

Comment: No clear picture of the economics of this industry was secured. The selection and purchase of hides involves knowledge of tanning, size, and quality of the hide. Guarache makers apparently earn as little as 20 centavos a day, but there are no full-time professionals in town. All local manufacturers make guaraches to order and in claiming they make only one pair a day, they probably mean they do not attempt to make more than one pair a day.

281 435 434 *Tanning:*

Charge per cowhide	$5.00–$10.00
Charge per sheepskin	.50
Average daily return	1.25

281 434 *Comment:* The average daily return is an estimate, based on the assumption the tanner is busy all the time. The only full-time tanner buys hides, tans them on his own account, and sells them outside the village when he is not occupied with commissions. Consequently, his income is probably fairly steady.

922 434 *Lacquer:*

Weekly income about $5

Comment: Only one woman lacquer worker is found in Cherán. Her entire output is sold locally. The figure given is her estimate of her weekly income. Some of the lacquer materials are fairly expensive and the wooden trays used as a base must be purchased. Probably net income is much less than $5 weekly. The main lacquer industry is in Uruapan and is mostly in the hands of Mestizos.

256 433 434 *Bakers (commercial):*

Cost of materials (per week):

Flour, 1 *arroba* (25 pounds)	$3.50–$3.62
Lard, 1 kilo	1.50
Sugar, 3 kilos	1.08
Total	$6.08–$6.20

Labor:

No precise data; bakings per week, usually	3

Sales:

Gross returns per week, estimated	$10.00–$12.00

Profits:

(Estimated after deducting any rental costs for use of oven)	$3.80–$5.92

Comment: Sustained sales at the reported levels would produce slightly better than average wages. Despite the lack of definite data on hours of labor, a baker certainly works fewer hours and less strenuously than a laborer. Much time is probably consumed in selling; this may be done by a wife in the case of professional male bakers. Selling time is not included in the estimates. It should be remembered that a number of women bake occasionally; some bake regularly for the Sunday market in Paracho.

Bakers (home):

Aside from the professional baker of *pan dulce* recently established in the village and from whom no satisfactory information could be secured, there are a number of women who bake bread. Salt rising bread (*pan de sal*) is sold at two for 5 and one for 5 centavos, depending on size. [435] If *pan dulce* is made, it sells at 1 centavo or at three for 5 centavos, depending on size. In most cases the baker owns her oven, but in some cases an oven is rented. The rental is usually one [427] bread for each "board" (on which the bread is placed to rise).

243 *Threshing machine:*
407 *Equipment:*
433 Woodburning steam-driven threshing machine. Cost unknown, but probably several thousand pesos.
434

Charges for wheat threshing (a *carga*)	$2.50
Capacity daily	12 *cargas*
Income daily	$30.00

Operating expenses (daily):	
Wood	$2.00
Hired labor	2.00
Water carrier	1.00
Total	$5.00

Operating season (June 20 to Oct. 25, period worked in 1940 estimated):	Days
June	8
July	25
August	25
September	20
October	15
Total	93

Total business (1,116 *cargas*, estimated, at $2.50 a *carga*)	$2,790
Net profit annually before deducting repairs, wages for owner, interest and depreciation, approximately	$2,365

Comment: Probably the threshing machine has the largest peso volume of business of any enterprise in Cherán, although one of the *nixtamal* mills probably is a close second. The threshing machine also represents the greatest capital investment except for some individual investments in real estate. High repair costs probably reduce the true net profit considerably, while depreciation in this case cannot be ignored. Add to this the time and skill required of the owner, and it is probable that this is not the most profitable enterprise in town even though it be the largest. Certainly, other families of farmers or combination farmers and storekeepers show more outward signs of prosperity.

402 *Nixtamal mills:*

Cost of equipment	$300.00–$1200.00
Costs daily:	
Gasoline and oil for gas engines	2.00
Charcoal for producer gas equipped engines	1.20
Labor, 1 man	.80–1.00
Gross income at 1 centavo per kilo of maize ground (daily)	13.00–15.00
Net income (daily)	10.00–12.00

433
434
256

Comment: Mills work only half time; i.e., by agreement only half the mills operate any one day, so net income should be halved. Even so, this gives a sizable income, but probably the life of the equipment is short. Cost of repairs and the replacement of grinding stones

256 ($9 every few weeks) is also an item not included.
402 Some engines are equipped to saw wood, when not
433 driving mills; pine logs are cut in lengths suitable for
434 splitting into box lumber. The blocks are shipped in trucks to Uruapan, where they are split to make crates for shipping fruit. No data on costs or sales were secured on this minor business.

305 *Barbers:*
434

Prices:	
Haircuts:	
Weekdays	$0.15
Sundays	.20
Shaves	.10–.15
Number of "jobs" daily:	
Except Saturday	4–8
Saturday	10–15
Income (a week)	$6.00–$7.50

Comment: Average income is probably under $1.00 a day. One of the two full-time barbers (with the smallest income) supplements this by card playing. One barber works only on Sundays and makes shakes during the week.

533 *Musicians:*
434

Wages:	
For 2-day fiesta	$10
For wedding	2
Number of engagements (individual cases):	
(a) 6 fiestas, 15 weddings, in 9 months	90
(b) 5 fiestas, 5 weddings, period unknown	60
(c) 10 fiestas in 1 year	100

Comment: The musicians obviously do not make a living from music. All have other sources of income; some are farmers, storekeepers, barbers, etc.

338 *Painters, plasterers:*
434

Daily wage	$1.75–2.50

Comment: Painters and plasterers have only occasional demands for their skills. Only a few stone or adobe houses are plastered, and fewer still are painted. Most jobs are by contract.

529 *Billiard parlors:*
433
434

Equipment	$1,500–$1,700
Rent (monthly)	10–20
Charge per game	.05

Comment: No estimate of the amount of business was received. It is evident, though, that the enterprise is profitable, to judge by dress and other characteristics of the owners.

253 *Butchers:*
433
434

Prices paid for beeves on hoof	$80–$150
Prices reported paid at wholesale for beef weighing:	

15 *arrobas* (375 pounds)	$90
14 *arrobas* (350 pounds)	65
16 *arrobas* (400 pounds)	92
Retail price (per kilo)	.70
Gross profit on beef (per kilo)	.40–.45
Price of pigs	30.00 and up
Gross profit, per week	7.00–8.00
Gross profit, per pig	3.50–8.00

Comment: Returns to butchers are slight on the basis of meat sales. Generally the profit consists of: (a) Meat for the family at no cost, and (b) sale of the hide, usually for $10.00. Most butchers handle beef only, but one who specializes on pork, butchering one or two a week, claimed a profit of 7 or 8 pesos. An item unaccounted for in the figures for beef is a tax of $5.00 on each animal killed. It is also widely believed that some butchers deal in stolen cattle at a considerable profit. Few butchers lack other sources of income, however, which argues against great profits. Butchering also varies in profitableness at various seasons; when cheese is abundant the demand for meat falls off, and the butcher may have to dry part of his meat and sell it at a lower price.

Field watchers:

Wages:	
In maize	1 row in 30
Average income for 6 weeks to 2 months (cash value of maize)	$60–$65

Comment: Field watchers (*veladores*) must be men of good reputation. Usually they watch 20 to 25 pieces of land. Although wages seem high—$1 a day or more—the work is seasonal and involves staying day and night in the fields.

Water carrying:

Charge for two 25-liter cans	$0.06

Comment: Only one man engages in this work regularly. He works fairly steadily, but no data were secured on his income. Presumably it is as good or better than he could earn as a laborer.

Beekeeping:

12 hives produced:	
15 liters of honey at $0.60	$ 9.00
3–4 kilos of wax at $2.25–$2.50	6.70–10.00
Wax:	
1 kilo makes 10-centavo candles worth	3.00– 3.25
3–4 kilos make 10-centavo candles worth	9.00–13.00
Potential income from 12 hives if owner makes candles	18.00–22.00

Comment: In all cases bees are kept as a profitable, but not extremely important, sideline to other activites.

Fireworks making:

Figures from the one fireworks maker in Cherán proved inconsistent upon analysis. The following facts seem reasonable.

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.759] Sierra Tarascans

389 433 434

Materials and prices:	Per kg.
Nitrate	$1.70
Chlorate	5.00
Sulfur	.80
Fiber string	1.00
Shakes, cane, etc.	Nominal

(Shakes are $5 a bundle of 400, but the number used is small; 3 or 4 per dozen *cohetes*, for example.)

Comment: Cohetes are made to order and sell at $3.00 to $4.00 per dozen. *Castillos* or set pieces are done on contract. Gross income from this source was at least $400 in 1940. Between times *cohetes* were made fairly steadily. Probably the fireworks maker's income is above average.

DISTRIBUTION

439 The problem of distribution affects primarily those goods which are exported from Cherán and those things which are imported. Only a small fraction of the materials produced locally are sold locally; in the main each family produces the local products it consumes and sells its surplus for export.

The export goods of Cherán consist almost wholly of forest products and farm products. The first are usually sold on contract or are transported by the producer to market. Railroad ties, for example, are always cut on contract. Charcoal is mostly sold to dealers from Zacapu and is delivered to the nearest spot where it can be picked up by trucks. However, there is some small local sale, mostly for operation of producer gas generators for *nixtamal* mills, and a little is carried on burros to such a town as Uruapan. Similarly, planks and beams are mainly sold, either to dealers who pick them up in trucks for export or locally on contract to someone building a house. In towns close to Uruapan, Zamora, or other centers, much of the sale of such products as charcoal, planks, and beams is direct, the maker carrying the goods to town on market day.

The major exception to the marketing methods for forest products described above is tejamanil, or shakes. For the local market, the shake maker usually works on order. For the export market he usually takes his product on burros to some nearby Mestizo town. These expeditions may be combined with other trading operations. Thus, shakes may be taken to Turetan via Nahuatzen, Tingambato, and Ziracuaretiro, a full-day trip with burros from 5

241 years. Therefore, men who own land in only
311 one 'plain' plant only every other year. Conse-
621 quently, everyone tries to have land in at least two 'plains'."[47]

Similarly in Jarácuaro, the whole island is divided into two sections which are alternately cultivated.

West describes this system as general in the Sierra.[48]

[609] Given this system of cultivation, the resistance against selling land to outsiders is easily understandable as all farmers have to work in close agreement. Any outsider using his land in a different way would disrupt the whole system.

This question of disintegrative versus
812 conservative tendencies within the villages
621 can also be discussed in relation to a subsistence economy or a market economy. No
438 doubt, in proportion as production is for
433 consumption within the village, the easier it is for the community to hold its own against disrupting influences; the more it is intended for a larger market, the more likely it is that outside influences will penetrate the life of the community.

439 The connection of any Tarascan village economy, whether agricultural or depending on crafts, to the national and world
433 markets is undisputed and has been set forth clearly.[49] Part of the agricultural products, practically all handicrafts, and a sizable amount of labor are sold out by producers, while most consumption goods are bought from outside, with the exception of part of the food (housing and clothing to a much lesser extent). However, production of food, mainly corn for the villagers' own consumption, is basic to the economy of the villages and their relation to the national economy. This fact determines their attitude toward land and corn.

423 Land is the most desired form of property
435 and the safest way of investing money, because of the security it will give as a source
[185] of corn. The ability to produce one's own corn is the supreme aspiration of every farmer.

433 An analysis of agricultural economics shows that farming on poor land in Cherán
241 (a prosperous farming town) and Tzintzuntzan is done at a loss; that is, production costs (equipment, taxes, labor, etc.) are greater than the value of the crop.[50] Owners of such lands could earn more by hiring out as laborers than by working their own fields.[51] This way of farming

47. Beals, 1946, 20.
48. West, 1948, 29.
49. Beals, 1946, 59-0; Foster, 1948, 145-6, 229-30.
50. Foster, 1948, 76-8, table 14; Beals, 1946, 65-6.
51. Foster, 1948, 78.

2:Carrasco E-4, 5 (1945)1952
[P.186] NU34 Tarasco NU34
Pátzcuaro

241 433 goes on because, as Beals says, "The Cherán point of view does not reckon agricultural activity in terms of interest, profits and wages, but in terms of maize in the storage houses."[52]

464 Monzón,[53] in discussing the Indian problem of Mexico from the point of view of Western civilization, considers the Indians together with the unemployed as a labor reserve, only occasionally put to use. If one views the situation from the point of view of the Western economic system and considers the fact that farming is done at a loss, the great importance of emigration,[54] [167] and the enormous response of labor during the war when laborers *(braceros)* were contracted to work in the United States, one wonders if the basic factor preserving the self-centered Indian villages and their folk culture is the strength of these, or rather the inability of the Western economic system to absorb those people whom the disruptive tendencies created by this system throw out to the labor market.

438 178 Handicrafts are very important to the economy of many Tarascan villages, and changes have to be examined in this field. Throughout the Colonial and Independence periods, many changes took place in industries and their location. These changes have been described by West.[55] Of interest to our subject are changes as related to the disruptive and conservative tendencies within the villages. The development of modern industry in Mexico and the concomitant higher economic activity have caused, on the one hand, the decline or disappearance of some handicrafts which can not compete with industrial products, and, on the other hand, the further development of handicrafts which have found a better market and no competition.

178 286 Among the declining industries, the most important are textile handicrafts. Spinning and weaving of white cotton cloth, which was the most important fabric made, have completely disappeared.[56] Women's skirts are increasingly made from factory-manufactured woolens instead of the local hand-made cloth,[57] and industrial cotton or woolen blankets *(tilma, poncho)* 463 are cheaper than the locally made serape, 178 and are frequently used even if the latter are preferred. Ironwork is another extinct craft,[58] leather work has greatly declined,[59]

52. Beals, 1946, 68.
53. Monzón, 1947, 227.
54. Beals, 1946, 68.
55. West, 1948, 56-71.
56. *Ibid.*, 64.
57. *Ibid.*, 60.
58. *Ibid.*, 70-71.
59. *Ibid.*, 66.